CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

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CALIFORNIA FOREST STATISTICS

compiled by

Divisions of Forest Economics and Forest Survey

These statistics were compiled for the most part in 1938 in order to assist the Joint Congressional Committee on Forestry in its investigations of the forest lands of the United States[1]. Some of the broader statistics are published in the appendix of the Committee's report along with comparable data for other parts of the country, but because a considerable portion of the detailed regional breakdown could not be included, it is deemed advisable to make this information available for those especially interested in California conditions.

Fifteen tables are presented; tables 1 - 4 deal with forest areas; tables 5 - 12 with timber stands, including growth and drain; and tables 13 - 15 with lumber distribution and consumption.

A word of caution: The data are approximate only; there is no claim for preciseness and estimates are subject to continual change. Yet it is felt no better information is available, and until the detailed forest survey, which is now in only its initial planning phases, is completed for California, truly accurate figures will be non-existent.

In the compilation of these data, reference was made to a large mass of statistics, authorities in particular subjects, and earlier reports. The tables are footnoted to indicate source of information, but three reports referred to deserve special mention. By the "Capper report" is meant an unpublished manuscript prepared in 1931 entitled, "Report to accompany statistical data on forest areas, stands, growth, drain for California." The

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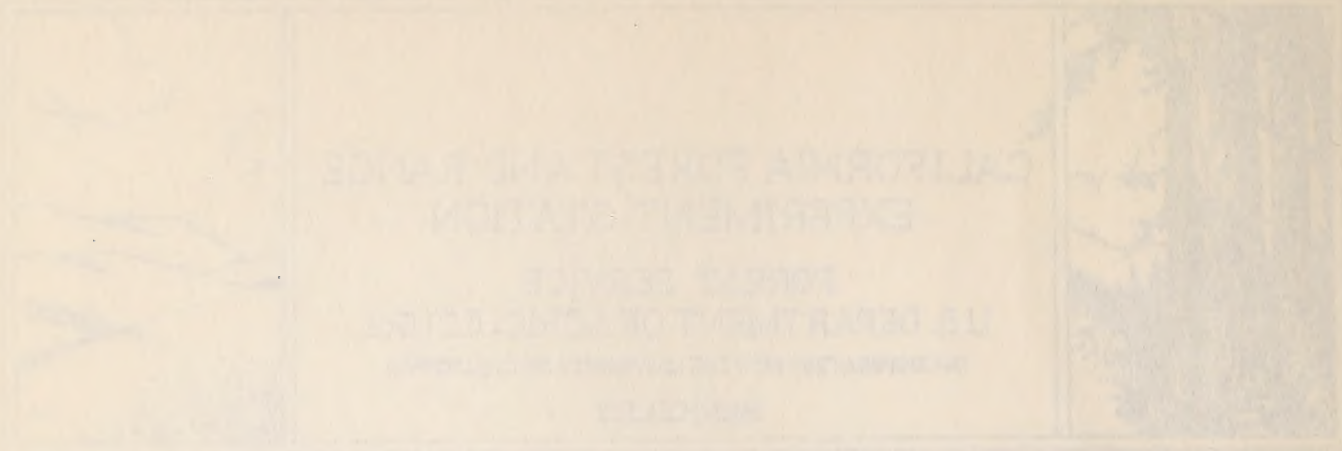
1/ For report of this committee see Senate Doc. 32, 77th Cong., 1st session. 1941.



"Range report" means data prepared for Senate Doc. 199, 74th Congress, 2d session entitled, "The western range." The "1934 Report to National Resources Board" consists partly of a tabular presentation of land use data by counties prepared by the Forest Service for the Lands Committee Report of the National Resources Board.

In studying the following tables, careful attention should be paid to definition of terms, particularly to the meaning of commercial and non-commercial forest land, as stated in footnotes 1 and 2, table 2.

A list of the tables follows:

Table No.	Subject
1.	Land area by major classes of land use.
2.	Forest land areas by broad classes of forest.
3.	Commercial forest land areas by character of growth by subregions.
4.	Ownership of commercial forest land areas by subregions and type of stands.
5.	Stand of sawtimber by type of stands on total commercial forest land area. All softwoods. 1936.
6.	Stand of sawtimber by species, on total commercial forest land area. All softwoods. 1936.
7.	Stand of cordwood (excluding bark) on sawtimber, cordwood and re-stocking areas by subregions.
8.	Total stand (cubic feet) on the commercial forest land areas by type of material, and by subregions.
9.	Stands of pulpwood species by kind of wood and by subregions.
10.	Ownership of stand of sawtimber on total commercial forest land area by subregions.
11.	Current annual growth on commercial forest areas by subregions, ownership and type of growth.
12.	Current annual growth and drain.
13.	Distribution of California lumber production to other states, 1922-1938.
14.	Amount and origin of lumber consumed in California, 1920-1938.
15.	Estimated average annual consumption of principal forest products used in California.

Table 1. - Land area by major classes of land use.
(Thousands of acres)

Region	Total area	All forest land	Crop land in farms	Pasture and range			Other
				Total	In farms	Not in farms	
Entire state	1/ 99,617	2/ 48,159	3/ 8,663	4/ 21,852	5/ 15,837	6/ 6,015	7/ 20,943

1/ 1935 Census.

2/ Data from Report to National Resources Board, 1934. Includes 19,706 timberlands; 17,869 woodland and chaparral; 4,503 farm woodland; and 6,081 estimated area in parks, primitive areas, etc. under some form of forest cover. About 25,000 of this classification may also be considered as grazable land.

3/ 1935 Census.

4/ Obtained as remainder of State total after deducting other items in table. Difference between this figure and area of grazable area in Range Report may be accounted for in grazable forest land.

5/ Remainder of 29,003 farm lands in 1934 Report to National Resources Board after taking out 8,663 crop lands and 4,503 farm woodlands.

6/ Obtained as remainder of total "Pasture and Range" after deducting part "In Farms."

7/ Includes 4,630 urban, roads, etc., and 676 estimated area in parks, primitive areas, etc. of high mountain barrens from 1934 Report to National Resources Board. Also includes 15,634 ungrazable desert from Range Report.

Table 2. - Forest land areas by broad classes of forest.
(Thousands of acres)

Region	Total forest land	Commercial forest land 1/	Non-commercial forest land 2/		
			Total	Withdrawn from timber use	Chiefly valuable for other purposes than timber
Entire State	48,159	3/ 13,655	34,504	4/ 1,567	5/ 32,937

1/ Land available and capable of producing timber of commercial quantity and quality under present or reasonably conceivable future conditions.

2/ Non-commercial forest land:
(a) Commercially valuable land in parks, preserves, etc., withdrawn from timber use.
(b) Land chiefly valuable for purposes other than timber production, such as pinon-juniper, chaparral, remote and inaccessible alpine ranges, and other areas which appear to be permanently out of the commercial timber-producing class because of low productivity or extreme inaccessibility. Much of the area has an important value in protecting watersheds, preventing or reducing soil erosion, protecting wildlife, providing game cover, etc.

3/ Kevin's estimate for Pine Region (plus area of State land unaccounted for) and Person's estimate for Redwood Region.

4/ Capper Revision figure of 1,516 plus Federal and State additions of 51,000 acres.

5/ Includes 6,051 timberlands (Douglas fir and white fir, and other timberlands outside Kevin's working circles and in southern California) and 26,886 other forest land (subalpine types, woodland and chaparral, and pinon-juniper lands).

Table 3. - Commercial forest land areas by character of growth by subregions.

(Thousands of acres)

Region	Total area	Sawtimber			Cordwood	Fair to satisfactory restocking	Poor to non-restocking
		Total	Old growth	Second growth			
Entire State	13,655	9,810	8,653	1,157	278	209	3,358
Pine region[1/]	12,255	8,910	7,803	1,107	278	109	2,958
Redwood region[2/]	1,400	900	850	50	-	100	400

1/ Total area from Kevin's working circle estimate plus unlisted area of State land, Proportions of individual items from Capper Revision.

2/ Total area and individual items from Person's 1936 estimate.

Table 4. - Ownership of commercial forest land areas by subregions and type of stands.

(Thousands of acres)

	Total	Federal			State, County & Municipal	Private		
		Total	Nat'l. Forest	Ind. Res.		Total	Farm[1]	Industrial and other
Pine Region[2]								
Commercial stands	12,255	6,809	6,696	113	41	5,405	270	5,135
Valuable for other purposes	3,294	2,432	2,432	-	13	849	34	815
Subtotal	15,549	9,241	9,128	113	54	6,254	304	5,950
Redwood Region[3]								
Commercial stands	1,400	2	-	2	4	1,394	56	1,338
Valuable for other purposes	975	103	-	103	-	872	35	837
Subtotal	2,375	105	-	105	4	2,266	91	2,175
California								
Commercial stands	13,655	6,811	6,696	115	45	6,799	326	6,473
Valuable for other purposes	4,269	2,535	2,432	103	13	1,721	69	1,652
	17,924	9,546	9,128	218	58	8,520	395	8,125

1/ Forest areas owned by farmers estimated at 5 percent of the private forest area in the pine region, on the basis of data obtained in the Land-Use Study of the Sierra Nevada Foothills. For the "Stands valuable for other purposes" and for the Redwood Region, 4 percent of the private forest land was estimated to be in farm ownership.

2/ Commercial forest areas in private and national forest ownership from Kevin's report on timber-working circles. Areas of State land and areas valuable for other purposes based on Capper Revision Report.

3/ Areas for redwood region from Person's 1936 estimate, and from Capper Revision Report.

Table 5. - Stand of sawtimber by type of stands on total commercial forest-land area. All softwoods. 1936. Millions of feet B.M. lumber tally.

	State totals			Pine region[1]			Redwood region[1]		
	Total	Old growth	Second growth	Total	Old growth	Second growth	Total	Old growth	Second growth
Now commercially available	170,244	163,554	6,690	123,984	[3] 118,304	[4] 5,680	46,260	[7] 45,250	[8] 1,010
More valuable for other purposes[1]	45,430	45,160	270	34,670	[5] 34,400	[6] 270	10,760	[9] 10,760	[10]
Total, merchantable size and stand	[2] 215,674	208,714	6,960	158,654	152,704	5,950	57,020	56,010	1,010

1/ "More valuable for other purposes" consists of the Douglas fir type in both pine and redwood regions, and one-half of the true fir type in pine region, (see note 5/).
2/ Much below Capper, due chiefly to new figures for Commercial Old Growth, as indicated in notes 3/ and 7/.
3/ Kevin Working Circle figures 5 percent overrun for lumber tally, as representing present lumbering stands.
4/ Capper, -6 years cut-over reserve stands estimated; not included in Working Circles (Kevin).
5/ Capper Douglas fir type, and one-half true fir estimated as not included in Working Circles (Kevin).
6/ Capper, - no cut-over reserve added; cutting negligible.
7/ Person, 1936 estimate decreased by 1936 cut, and lumber tally overrun added. Overrun not believed valid for redwood by Person, because of radical differences between Humboldt log rule (used in redwood region) and Scribner, but used for consistency with instructions.
8/ One-half of Capper only. Person thinks Capper much too high. Although diameter limit in redwood average 30 inches, less cut-over reserve (if any) is left than in pine because everything left was knocked down, prior to 1935.
9/ Capper report without change.
10/ No second growth given in Capper for redwood region Douglas fir type, because of practically no logging.

Table 6. - Stand of sawtimber by species, on total commercial forest land area. All softwoods. 1936. Millions of feet B.M. lumber tally.

	State totals			Pine region			Redwood region		
	Total	Commercial	Other purposes	Total	Commercial	Other purposes	Total	Commercial	Other purposes
Ponderosa pine	54,451	54,251	200	54,451	1/ 54,251	200			
Sugar pine	21,983	21,883	100	21,983	2/ 21,883	100			
Incense cedar	7,600	7,570	30	7,600	3/ 7,570	3/ 30			
White fir	32,740	25,550	7,190	30,400	3/ 23,410	3/ 6,990	2,340	4/ 2,140	200
Red fir	8,000	250	7,750	8,000	250	7,750			
Douglas fir	51,400	21,540	29,860	35,920	16,620	19,300	15,480	4,920	10,560
Redwood	39,150	39,150					39,150	6/ 39,150	
Other	350	50	300	300		5/ 300	50	7/ 50	
Grand totals	215,674	170,244	45,430	158,654	123,984	34,670	57,020	46,260	10,760

1/ Including Jeffrey pine.

2/ Blister Rust estimate, 1937, believed much the most accurate we have on this species, in absence of a Forest Survey in this Region. No adjustment for cut because spring, 1937, same as fall, 1936. Ponderosa pine and "All Other" taken at same percentage as sugar pine of respective volumes in Exp. Sta. 1932 revision of species stands, showing two pines separately and "All Other" for Pine Region on basis of Scofield 1932 estimate for State Board of Equalization checked by Wohlenberg judgment from Internal Revenue data; "All Other" being adjusted to Pine Region old growth total (Table 1). "All Other" separated into species by comparison with the only estimate by detailed species in this Region, C. S. Smith's Study of Lumber Industry in California (M.S. 1914), with judgment adjustments for cut since that time and other factors of present amount. Species segregated on judgment basis of Redwood 85 percent of old growth commercial stand (Person) and 75 percent of second growth; Douglas fir 10 percent of old growth stands and 20 percent of second growth.

3/ Abies concolor.

4/ Abies grandis.

5/ Chiefly lodgepole pine, with various subalpines higher up.

6/ 38,400 old growth.

7/ Chiefly Sitka spruce, western hemlock, etc.

Table 7. - Stand of cordwood (excluding bark)[1] on sawtimber, cordwood and restocking areas by subregions[2].

(Thousands of cords)

Subregion	Total	Saw timber areas			Cordwood areas			Restocking areas		
		Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
Pine region	78,706	78,562	78,562	-	144	144	-	-	-	-
Redwood region	85,533	85,533	85,533	-	0	0	-	-	-	-
California total	164,239	164,095	164,095	-	144	144	-	-	-	-

1/ Includes all trees below sawtimber size, and tops and limbs (only tops in softwoods) of sawtimber trees.

2/ Figures based on Tables 35 and 36 of Capper Revision Report, 1931. Capper Report figures for tops and limbs reduced to 79 percent for pine region and to 70 percent for the redwood region on the basis of revised timber stand estimates.

Table 8. - Total stand (cubic feet) on the commercial forest land areas by type of material, and by subregions.

(Million cubic feet)

Subregion	All material 1/			Sawtimber trees 2/			Cordwood trees		
	Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
Pine region	41,977.5	41,977.5	-	40,357.7	40,357.7	-	1,619.8	1,619.8	-
Redwood region	21,154.7	21,154.7	-	20,730.8	20,730.8	-	423.9	423.9	-
California total	63,132.2	63,132.2	-	61,088.5	61,088.5	-	2,043.7	2,043.7	-

1/ Sawtimber estimates (Table 5) in board feet converted to cubic feet in the ratio of 212 cubic feet per M B.M.; cordwood (Table 7) converted to cubic feet in the ratio of 106 cubic feet per cord, (as in Capper Report).

2/ Includes tops and limbs (only tops in softwoods) as well as portion of tree suitable for saw logs.

Table 9. - Stands of pulpwood species by kind of wood and by subregions.

(Thousands of cords)

Kind of wood	Total	Pine region	Redwood region
White amd red fir			
Sawtimber[1/]	81,480	76,800	4,680
Cordwood[2/]	22,554	19,047	3,507
Total	104,034	95,847	8,187
Douglas fir			
Sawtimber[1/]	102,800	71,840	30,960
Cordwood[2/]	40,968	17,788	23,180
Total	143,768	89,628	54,140
Totals			
Sawtimber[1/]	184,280	148,640	35,640
Cordwood[2/]	63,522	36,835	26,687
Total	247,802	185,475	62,327

1/ Sawtimber stands in Table 6 converted to cords in ratio of 2 cords per M board feet.

2/ Includes small trees and tops of trees on sawtimber areas, and cordwood on cordwood areas. The percentages of the total sawtimber stand (Table 6) accounted for by fir and Douglas fir were used in calculating the proportion of the cordwood stand (Table 7) represented by fir and Douglas fir.

Table 10. - Ownership of stand of sawtimber on total commercial forest land area by subregions.

(Million feet, board measure)

Subregion	Total	Federally owned and managed				State	Private		
		Total	National forest	Indian reservation	Other	County and Municipal	Total	Farm woodland 1/	Industrial and other
Pine region									
Commercial stands	123,984	62,619	61,554	1,065	-	190	61,175	1,500	59,675
Valuable for other purposes	34,670	24,985	24,985	-	-	50	9,635	200	9,435
Subtotal	158,654	87,604	86,539	1,065	-	240	70,810	1,700	69,110
Redwood region									
Commercial stands	46,260	204	-	204	-	535	45,521	900	44,621
Valuable for other purposes	10,760	1,648	-	1,648	-	-	9,112	200	8,912
Subtotal	57,020	1,852	-	1,852	-	535	54,633	1,100	53,533
California									
Commercial stands	170,244	62,823	61,554	1,269	-	725	106,696	2,400	104,296
Valuable for other purposes	45,430	26,633	24,985	1,648	-	50	18,747	400	18,347
Total	215,674	89,456	86,539	2,917	-	775	125,443	2,800	122,643

1/ No data available for farm timberlands; the Agricultural Census includes woodland and chaparral in addition to commercial timber. Commercial stands in farm woodlands estimated at 2.5 percent of the private timber volume in the pine region on the basis of data obtained in the Land-use study of the Sierra Nevada foothills. In Yuba County, e.g., 5 percent of the timber area and an estimated 2.5 percent of the timber stand is in farm woodlands. For the redwood region and for stands "valuable for other purposes," farm woodlands were estimated to contain about 2 percent of the private timber stands.

Table 11. - Current annual growth on commercial forest areas by subregions, ownership, and type of growth.

Subregion and ownership	Combined sawtimber and cordwood growth[1]			Sawtimber growth[2]			Cordwood growth		
	Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
	Million cubic feet	Million cubic feet	Million cubic feet	Million feet B.M.	Million feet B.M.	Million feet B.M.	Thousand cords	Thousand cords	Thousand cords
Pine region									
National forest	57.1	57.1	-	168.9	168.9	-	201.6	201.6	-
Private	64.3	64.3	-	168.6	168.6	-	266.5	266.5	-
	121.4	121.4	-	337.5	337.5	-	468.1	468.1	-
Redwood region									
Private	33.2	33.2	-	76.7	76.7	-	159.9	159.9	-
Total for State									
National forest	57.1	57.1	-	168.9	168.9	-	201.6	201.6	-
Private	97.5	97.5	-	245.3	245.3	-	426.4	426.4	-
Total	154.6	154.6	-	414.2	414.2	-	628.0	628.0	-

1/ Total growth calculated on the basis of the growth rates given in the Capper Revision Report, 1931, and stand on areas of commercial forest given in Table 8.

2/ For the pine region, growth in old stands estimated (by Dunning) to be entirely on cordwood trees, losses balancing growth on sawtimber trees; growth in second-growth stands estimated to be 89 percent on sawtimber trees and 11 percent on cordwood trees; growth on restocking areas estimated to be 50 percent on cordwood trees. For the redwood region, growth in old stands estimated to be entirely on sawtimber trees; growth in second-growth stands estimated to be 90 percent on sawtimber trees; growth in restocking areas estimated to be 10 percent on sawtimber trees.

Table 12. - Current annual growth and drain.[1/]

Item	Combined sawtimber and cordwood	Sawtimber only
	Million cubic feet	Million board feet
Total growth	154.6	414.2
Total drain	501.3	2,649.3
From fire	25.3	110.5
From insects	125.1	620.0
From disease	-	-
From all wood utilization[2/]	350.9	1,918.8
Ratio drain to growth	3.2	6.4

1/ Data are an approximate average for the period 1935-40.

2/ In 1936 wood cut for lumber only totalled 283.3 million cubic feet or 1,647.5 million board feet. In 1940, the total lumber cut was 1,958.2 million board feet.

Table 13. - Distribution of California lumber production to other states, 1922-1938[1/].

Year	California production	Out of State shipments: Total	Ratio to production	Out of State shipments by regions: Atlantic	Lake	Central	Prairie	South	Rocky Mt.	Nevada & Pac.N.W.	Foreign
	M bd.ft.	M bd.ft.	Percent	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.
1922	1,723,783	429,733	24.9	81,011	71,972	91,812	67,812	26,777	19,455	12,731	58,163
1924	1,986,533	639,193	32.2	120,648	105,544	146,004	91,433	43,283	25,996	26,178	80,107
1926	2,187,950	748,072	34.2	128,635	97,599	165,855	65,662	79,841	28,133	24,090	158,257
1928	1,949,555	819,627	42.0	145,279	118,299	203,796	73,635	75,357	30,614	28,829	143,818
1930	1,514,833	465,987	30.8	117,934	66,268	94,621	48,101	31,568	25,473	16,360	65,662
1932	681,197	233,510	34.3	57,835	33,374	55,946	17,341	16,308	13,843	12,731	26,132
1934	1,015,505	301,658	29.7	83,464	44,780	48,269	28,400	20,994	12,155	20,506	43,090
1936	1,647,537	586,757	35.6	128,629	104,991	96,861	74,775	50,450	26,220	47,082	57,749
1938	1,461,961	463,244	31.7	75,731	91,789	83,851	50,328	46,061	24,324	43,999	47,161
Average	1,574,317	520,865	33.1	104,352	81,624	109,668	57,499	43,404	22,913	25,834	75,571

1/ Source of data: "Lumber distribution and consumption;" U. S. Bureau of the Census and U. S. Forest Service, 1934, 1936, and 1938.

Table 14. - Amount and origin of lumber consumed in California, 1920-1938[1/].

Year	Total consumption	Derived within State		From other States		Foreign imports		Per capita consumption	
		Total	Ratio to consumption	Total	Ratio to consumption	Total	Ratio to consumption	California	U. S.
	M bd.ft.	M bd.ft.	Percent	M bd.ft.	Percent	M bd.ft.	Percent	bd.ft.	bd.ft.
1920	2,257,108	516,855	22.9	1,657,662	73.4	82,591	3.7	649	315
1922	3,386,805	990,051	29.2	2,349,621	69.4	47,133	1.4	852	320
1924	3,569,352	1,180,740	33.1	2,285,432	64.0	103,180	2.9	809	328
1926	3,557,062	1,196,193	33.6	2,298,790	64.6	62,079	1.8	733	327
1928	3,066,894	969,755	31.6	2,051,701	66.9	45,438	1.5	579	295
1930	2,414,345	781,490	32.4	1,570,709	65.1	62,146	2.5	421	190
1932	1,457,010	676,001	46.4	761,476	52.3	19,533	1.3	245	94
1934	1,497,848	639,573	42.7	847,941	56.6	10,334	0.7	243	114
1936	2,568,603	1,013,850	39.5	1,522,970	59.3	31,783	1.2	424	184
1938	2,634,670	1,016,621	38.6	1,589,667	60.3	28,382	1.1	421	164
Average	2,640,970	898,113	34.0	1,693,597	64.1	49,260	1.9	538	233

1/ Source of data: "Lumber distribution and consumption;" U. S. Bureau of the Census and U. S. Forest Service, 1934, 1936, and 1938.

Table 15. - Estimated average annual consumption of principal forest products used in California[1/].

Product	Quantity used: Board footage	Quantity used: Cubic footage[2/]	Ratio to total wood consumption	Quantity derived within California: Total	Quantity derived within California: Ratio to consumption
	M bd.ft.	M cu.ft.	Percent	M cu.ft.	Percent
Lumber	2,641,000	528,000	78.0	180,000	34.1
Shingles and lath	80,000	16,000	2.4	3,000	18.8
Veneer	60,000	12,000	1.8	3,000	25.0
Cooperage	50,000	10,000	1.5	5,000	50.0
Hewed ties	20,000	4,000	0.6	4,000	100.0
Poles	-	3,500	0.5	200	5.7
Piling	-	3,500	0.5	-	0.0
Mine props	-	1,200	0.2	1,200	100.0
Posts	-	6,000[3/]	0.9	6,000	100.0
Stakes	-	400	0.1	400	100.0
Shakes	-	200	-	150	75.0
Fuel	-	40,000[3/]	5.9	40,000	100.0
Pulp and paper	-	51,300[4/]	7.6	-	0.0
Total	-	676,100	100.0	242,950	35.9

1/ Source of data: Capper Report Revision 1931; Report on "Future wood requirements in California," 1935, and Census Reports.

2/ Board footage converted to cubic footage in the ratio of 5:1.

3/ Includes wood cut in non-commercial forest areas.

4/ Estimated annual consumption of 500,000 tons of paper calculated to require 1.14 cords per ton.